RESEARCH ARTICLE

Testing the use of translation apps to overcome everyday healthcare communication in Australian aged-care hospital wards—An exploratory study

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Abstract

Aims and objectives: To trial three mobile translation apps in the healthcare setting to address language barriers in everyday care between healthcare staff and older people with limited English proficiency (LEP).

Design: A mixed-methods exploratory study.

Methods: A two-month trial of three translation apps was conducted across four aged-care hospital wards. Observed interactions during use of translation apps were recorded, and staff surveys regarding the use of translation apps were collected at the end of the trial. Data were analysed using descriptive statistics and thematic content analysis of open-ended responses in the surveys and observations. Findings from the thematic content analysis are reported using the Standards for Reporting of Qualitative Research (SRQR) checklist.

Results: Translation apps were mostly used for identifying pain and assisting with activities of daily living. Qualitative findings revealed that translation apps aided staff in providing care and improved rapport; however, practical shortcomings were identified.

KEYWORDS
communication, digital, gerontology, older people, translation

1 | INTRODUCTION

Australia is a multicultural society with a significant proportion of older people from culturally and linguistically diverse (CALD) backgrounds. Recent statistics indicate that 20% of older Australians are from a non-English speaking background, and that approximately 17% of older Australians spoke another language other than English (Australian Bureau of Statistics, 2016). As the likelihood of encountering the healthcare system increases in older people as they age due to chronic conditions, Older Australians with limited English proficiency may encounter a language barrier in healthcare settings, compromising patient safety in the clinical setting and result in reduced health outcomes.

2 | BACKGROUND

Effective communication is an important aspect of providing and receiving safe and person-centred care. However, language barriers between healthcare workers and patients can result in poorer healthcare outcomes for the individual. These can include longer hospital stays (Ali & Watson, 2018; Beagley et al., 2020), higher risk of adverse events during admission (Johnstone & Kanitsaki, 2006; van Rosse et al., 2016) and higher rates of readmission (Karliner et al., 2010). For healthcare staff, communication challenges as a result of language barriers with a patient can seriously impede the ability to provide effective care (Richardson et al., 2006).

The importance of interpreters in overcoming language barriers in the healthcare setting is widely recognized, and it is well established that patient outcomes improve when an interpreter is engaged when necessary (Beagley et al., 2020; Flores, 2005; Karliner et al., 2007). Within Australia, the need for interpreters in overcoming communication gaps in healthcare settings is established within legislation and government healthcare policy (Garrett, 2009; Hlavac et al., 2018). Despite this demand for interpreters exceeds supply (Ramsay et al., 2017), and ongoing demand for interpreters, the majority of day-to-day aspects of care is not feasible. Furthermore, some healthcare staff may not feel that they are not in a position to be able to request interpreters (Panayiotou et al., 2020).

When interpreters are not available, healthcare workers may "get-by", overcoming language barriers by using family members, bilingual staff members or resort to body language to communicate (Chang et al., 2019; Hilder et al., 2017; Panayiotou et al., 2020; Parsons et al., 2014). However, resorting to these methods always poses a risk (Chang et al., 2019; Nielsen et al., 2019), and using these methods to interpret is not appropriate and potentially against government and hospital interpreter and language policy. Mobile translation apps that can easily be downloaded onto a smartphone ("translation apps") could provide an innovative solution to overcome language differences in risk-free healthcare settings in the absence of a professional interpreter, particularly in the hospital setting. Recent reviews have highlighted the plethora of translation apps related to healthcare (Khander et al., 2018; Panayiotou et al., 2019). Unfortunately, the evidence on the real-world utility and efficacy of translation apps for health care is limited.

One such translation app is Google Translate, which enables translation between over 100 languages and is being increasingly investigated as a translation tool in healthcare settings. Reported benefits of Google Translate include accessibility and occasional success in communication with a monolingual patient (Kapoor et al., 2020; Moberly, 2018). Other published studies are less convincing about the utility of Google Translate in the healthcare setting. Such studies indicate that Google Translate is only suitable for short or simple healthcare phrases (Miller et al., 2018), and the varying accuracy of languages has been documented (Khoong et al., 2019; Nguyen-Lu et al., 2010; Patil & Davies, 2014). As such, the tool in its current iteration still presents several issues ranging from its accuracy across languages and inability to translate contextually.

Different to Google Translate's feature of "free-text" phrases, other language translation tools prefer "fixed-phrase translation" or "phrasalators" in order to avoid some of the pitfalls related to free translation without context (Panayiotou et al., 2020), and example of these include CALD Assist, Talk To Me and xPrompt. There is some evidence regarding the efficacy of fixed-phrase translation apps. One study found that the use of fixed-phrase translation apps can improve the communication between the healthcare worker and the patient (Albrecht et al., 2013). Another study found that translation apps designed for use in healthcare settings help to aid in retrieving information during emergencies (Spechbach et al., 2019).

Language differences between the individual and the healthcare worker are a major barrier to communication in healthcare settings. However, given that older people are more likely to be hospitalized, and that older CALD people are more likely to encounter barriers to healthcare due to language (Federation of Ethnic Communities' Council of Australia, 2015), the evidence on the efficacy of translation apps in healthcare settings with older people from CALD backgrounds is scarce. The aim of this research was to determine the acceptability and feasibility of using translation apps to overcome language differences in aged-care hospital wards between healthcare workers and older CALD individuals. This research project was the final component of a larger three-part project looking at translation apps to overcome language barriers between healthcare workers and older CALD Australians with limited English proficiency. The first stage involved a review of translation apps suitable for low-risk healthcare communication (Panayiotou et al., 2019), and the second stage investigated the perceptions of language translation apps in older Greek and Chinese Australians, and healthcare workers (Panayiotou et al., 2020). This paper reports the third stage of a trial of three translation apps within aged-care hospital wards, to determine the acceptability and feasibility of using translation apps to overcome language barriers.

3 | METHODS

3.1 | Design

This mixed-methods exploratory study explores the use of mobile translation apps in aged-care hospital wards. Three mobile translation apps were trialled over a two-month period in four aged-care hospital wards at three hospital sites in metropolitan Melbourne, Australia. Each ward selected two of three shortlisted mobile translation apps, and these apps were installed onto three iPads for each ward to use in situations where a communication barrier resulted with an older person from a CALD background with limited English proficiency. Because this study was exploratory in nature without defined primary outcomes, we did not register this study as a clinical trial. We report the findings from the thematic content analysis using the Standards for Reporting of Qualitative Research (SRQR) checklist (O'Brien et al., 2014) (Supplementary Material).

3.2 | Translation app selection

The three trial apps were CALD Assist, Talk To Me and Google Translate. CALD Assist is a translation app developed by Western Health in Melbourne (Silvera-Tawil et al., 2018), and Talk To Me was developed by St Vincent's Health Melbourne in 2016. Both translation apps work like a phrasebook, with a selection of carefully chosen healthcare-related phrases translated to a target language. The phrases can be audibly played in the target language, or visually observed through translated text or pictures. Only low-risk healthcare-related phrases can be translated in these apps, with no high-risk phrases that require a professional interpreter such as those conveying consent, complex medical procedures or technical conversations (Panayiotou et al., 2019). CALD Assist and Talk To Me were selected based on an earlier scoping study that identified their suitability for conveying only low-risk conversations (Panayiotou et al., 2019), while Google Translate was selected on the basis of feedback from ward staff that this and similar translation apps were already being used in the ward on an ad-hoc and unofficial basis.

3.3 | Recruitment and consent

The trial involved all nursing and allied health staff on the nominated aged-care wards, and approval was obtained from the relevant partner organizations authorized representatives for the trial to take place on the selected ward. Consent to obtain data from the staff surveys was done using an opt-in approach to completing the follow-up surveys. Individual consent was not sought from patients involved in the use of translation apps, as no personal or demographic information was sought. However, assent was sought from the patient on each occasion when the translation app was used, and the translation app was not used if assent was not given. If the staff or trial site coordinator had concerns about a patient's ability to assent to the use of translation apps based on their clinical judgement, the use of translation apps with the patient did not proceed. When the translation apps were used with patients, an information statement was provided to explain the use of translation apps. This statement was translated into the top 10 languages based on initial scoping data of each ward and the languages that were available on the selected translation apps.

3.4 | Trial implementation

Prior to trial commencement at each ward, two members of the research team conducted a 30-min training session to demonstrate the translation apps, including information about situations when it would not be appropriate to use the translation apps (Appendix S1 for examples). Staff were encouraged to use the translation apps with older patients with limited English proficiency when an interpreter was not available nor feasible for the interaction, and if the interaction was assessed to be low risk. Some examples of low-risk interactions or care routines included the following: identifying pain, asking patients if they were hungry or thirsty, or advising patients of care routines such as taking temperature or a blood pressure check (Appendix S1 for more examples). Each ward selected two of the three shortlisted translation apps to trial over the two-month period, with one translation app to be trialled per month.

3.5 | Data collection

During the trial period, at each site the nurse unit manager or the assistant nurse unit manager was selected as the trial coordinator due to their senior positions on their respective wards. The trial coordinator was required to undertake at least six observations of the translation apps in use with a patient with limited English proficiency, amounting to three per trial month to observe the use of translation apps. Since the wards are often busy and that the demographic makeup of the patients in the wards is unpredictable, we did not have specific rules around the collection of observations to improve data collection. This flexibility of data collection was done in order to minimize the impact of the research project on the busy day-to-day activities on the ward.

Observations were recorded on a data collection sheet. Data collected included the perceived efficacy of the translation app in communication, the type and frequency of use and perceived acceptability of use with inpatients. In addition, data were collected about each interaction, including the language, and average time used. At the conclusion of the trial, staff were invited to complete a staff survey measuring their experience of using the translation app, estimated frequency of use, most frequently used phrases, enablers, and barriers to using translation apps, and whether they would use translation apps in the future.

3.6 | Data analysis

Categorical and numerical data from the surveys and observations were collated using descriptive statistics using SPSS v25 (IBM Corp). Open-ended questions from the surveys and observations were thematically analysed using inductive qualitative content analysis, this approach being useful for analysing data that is fragmented (Elo & Kyngäs, 2008). Responses from the open-ended questions in the observational surveys were transcribed verbatim and managed using Microsoft Word. Two researchers each read the responses to the questions independently of other questions to gain familiarity with the content. Each response was interpreted for meaning and codes developed based on the interpretation. The codes were organized using a codebook guided by Roberts, Dowell and Nie (Roberts et al., 2019), and the codes were organized into themes. Agreement was calculated as described in Roberts, Dowell and Nie, with threshold of consensus at 75% agreement across the coding of the survey and observational responses. Any differences in codes and categories were discussed until consensus was reached.

4 | ETHICS

Ethics for this project was approved by the St Vincent's Hospital Human Research Ethics Committee (ref: HREC.17.SVHM.228).

5 | RESULTS

5.1 | Observations

There was a total of 22 observations recorded across the four aged-care hospital wards. One observation was omitted from the analysis due to the interaction not being with a patient over the age of 65. Of the 21 remaining observations, there were 10 observations for CALD Assist, 6 observations for Google Translate and 5 observations for TalkToMe. The average duration of app usage during the observations was 16.8 min, with a range of 10 to 25 min. The language of the observed interactions was as follows: Italian (6), Greek (4), Arabic (3), Vietnamese (2), Cantonese (2), Serbian (2), Macedonian (1) and Spanish (1).

5.2 | Staff survey

Twenty-four nursing and allied health staff across the four wards completed the staff survey. The characteristics of the survey respondents are listed in Table 1. Nearly half of the survey respondents were nursing staff (11/24, 45.8%), with most respondents indicating that they had 5 or more years' experience in their role (16/24, 66.6%). Most respondents estimated that the average translation app use with each patient was up to 10 min (17/24, 70.8%), with most finding the translation apps moderately easy to use (12/24, 50%). A majority of staff found the translation apps useful (18/24, 75%). Translation apps were most commonly used for identifying pain (10/24, 41.6%), and for allied health phrases including speech pathology and physiotherapy ("other," 10/24, 41.6%). For most respondents, if translation apps were not used it was because a family member was present to help with communication (16/24, 66.6%). Nearly two-thirds (15/24, 65.2%) of respondents indicated that they would use translation apps again in the future.

5.3 | Content analysis of surveys

From the qualitative inductive content analysis of the open-ended survey questions, three main categories were identified: "Engagement," "Communication" and "Features and functionality."

5.4 | Engagement

Engagement refers to how patients and staff responded to the use of the translation app for communication. Respondents generally

TABLE 1 Staff Surveys

	Respondents (n = 24)
Occupation	
Nurse	11 (45.8%)
Speech Pathologist	1 (4.2%)
Occupational Therapist	3 (12.5%)
Physiotherapist	3 (12.5%)
Pharmacist	1 (4.2%)
Doctor	1 (4.2%)
Volunteer	1 (4.2%)
Allied Health	1 (4.2%)
Years' experience	
Less than 2 years	2 (8.7%)
2–4 Years	5 (21.7%)
5–10 years	7 (30.4%)
11–20 years	4(17.4%)
21–35 years	3(13.0%)
35 + years	2 (8.7%)
Average usage time	
Less than a minute	2 (8.3%)
1–5 min	7 (29.2%)
5–10 min	10 (41.6%)
More than 10 min	3 (12.5%)
Not applicable	2 (8.3%)
Ease of use	2 missing
Very easy	4 (17.4%)
Moderately easy	12 (52.2%)
Slightly difficult	5 (21.7%)
Very difficult	2 (8.7%)
Usefulness	1 missing
Very useful	4 (17.4%)
Moderately useful	6 (26.1%)
Slightly useful	7 (30.4%)
Not useful	6 (26.1%)
Translation app was used for	2 missing
Identifying pain	10 (66.6%)
Other	10 (66.6%)
Assisting showering/dressing	7 (29.2%)
Assisting toileting	7 (29.2%)
Eating/drinking	6 (25.0%)
Medical administration	5 (20.8%)
Safety messages	5 (20.8%)
Positioning	4 (16.6%)
Orientating	4 (16.6%)
Taking observations	3 (12.5%)

TABLE 1 (Continued)

	Respondents ($n = 24$)
Translation app not used because	2 missing
Family members or other people available	16 (66.6%)
Interpreter available	10 (41.6%)
Easier to get by	8 (33.3%)
Under time pressure	8 (33.3%)
Communication cards and other resources available	3 (12.5%)
Patients' language was not available	2 (8.3%)
Other (cognitively impaired patients)	2 (8.3%)
Device not charged or not working	1 (4.2%)
Unable to find device	0 (0.0%)
Would use translation app in future	Missing 1
Yes	15 (65.2%)
No	8 (34.8%)

found that translation apps engaged patients through improving rapport. This could be through providing reassurance to patients: _"Patient had some level of spoken English, the app provided reassurance as she is usually anxious and vague."_ (Observer, site 1, Talk To Me). The use of the translation app also provided some level of excitement or novelty to the patients, since they were able to understand and respond to the app, and other patients showed happiness and appreciation when the staff member used the translation app to communicate: _"Patient appeared happy when clinician attempted to communicate in her language, and she was appreciative of it."_ (Observer, site 4, CALD Assist).

However, translation apps did not always improve rapport. At times when the translation app did not work well, this caused frustration for both staff and patients: "Patient _and staff became frustrated"_ (Observer, site 2, Google Translate). This was prominent in the observations and typically was an issue for Google Translate, resulting in neither parity identifying each other's needs and requests: _"Patient wasn't able to understand what the clinician asked. Clinician couldn't find out if the patient was in pain."_ (Interpreter Observer, site 2, Google Translate). The translation app also sometimes confused patients, particularly if they did not understand the purpose of the translation app or how it was used: _"Listened to translation then read it. It took a little while then she started speaking to us in Italian. Some confusion about the app."_ (Observer, site 2, CALD Assist).

5.5 | Communication

Communication refers to the conveying of messages between healthcare staff and patient, facilitated by the translation app. In general, translation apps were able to facilitate communication between the healthcare worker and patients with Limited English

Proficiency (LEP). Survey respondents and observers found that the translation apps were useful in communicating with patients with LEP and the messages conveyed were understood by the patients: _"I like that I can ask basic questions and my clients then understand what I am asking"_ (Occupational Therapist, site 1). As a result, it appeared that translation apps were able to help healthcare staff facilitate basic assisted daily living activities with their patients, and thereby improve care: _"Patient eventually sat down and responded positively by complying through use of app and hand gestures. Toileting with assistance was allowed by patient."_ (Observer, site 1, CALD Assist).

Although translation apps appeared useful in improving communication, there was some difficulty conveying messages. A prominent reported barrier was that often patients would reply in their native language when the translation app was used. For staff who were using CALD Assist and Talk To Me, the singular direction of the translation apps meant they were unable to translate and understand the response, further causing a communication barrier: _"It [translation app] can't translate the patient's response once it is used for patients to communicate"_ (Nurse 2, site 1). While Google Translate was able to translate responses, the utility of it was at times slow and difficult, requiring repetition to convey a message: _"Needed to ask, 'Have you had a shower yesterday' 7 tries before translation."_ (Observer, site 1, Google Translate).

A major subtheme within this theme was the concept of language. Translation apps did not work if the language of the patient was a dialect of a main language _"Some patients use different dialects"_ (Nurse 1, site 4), and for Google Translate, the accuracy of the translation was affected by the accent of the patient _"Does not pick accents correctly so uses wrong words making the translation confusing"_ (Volunteer healthcare worker 1, site 3). Finally, healthcare workers reported that communicating using translation apps was difficult if the patient had a form of cognitive, visual or hearing impairment.

5.6 | Features and functionality

Accessibility and functionality relate to the capabilities of the device and translation apps. Overall, most respondents found the translation apps and devices easy to use and readily accessible: _"Covers a majority of languages, quick to use and access, able to translate simple statement"_ (Physiotherapist 1, site 4). However, there were a few respondents who indicated that the translation apps were difficult to use particularly when not used regularly: _"If don't use [translation app] regularly [it is] difficult to use"_ (Nurse, site 3). Regarding audio-visual aspects, typically nursing and allied health staff reported the written and verbal abilities of the translation apps to be a useful feature: _"Able to communicate clearly with patients, able to show them and allow them to hear audio"_ (Nurse, site 1). However, for participants who used Google Translate, they found translation to be inaccurate: _"Inaccurate translation at times, patient wanted to engage with the screen"_ (Occupational therapist 2, site 2). For the translation apps with phrase libraries, most participants were satisfied with the number of phrases for basic communication; however, some allied health

staff wanted more discipline-specific phrases for their work in the app *"Needs more phrases for physiotherapy"* (Physiotherapist 3, site 4).

6 | DISCUSSION

To the best of our knowledge, our study is one of the first to investigate translation apps for the purposes of improving communication care need between healthcare staff and an older person with LEP in the aged-care hospital setting. Reviews have highlighted the plethora of translation apps on the market (Khander et al., 2018; Panayiotou et al., 2019), but there have been very few studies investigating the practical use in healthcare settings for which they are designed. Our study found that translation apps have the potential to be a useful tool in overcoming language barriers when interpreters are not available and enable staff to complete care tasks with their patient. They improved communication and as an added effect improved the engagement and rapport between the staff and older person.

The findings from the descriptive analysis of the surveys showed that healthcare staff found translation apps useful for overcoming language barriers and were generally supportive of the apps. Most respondents found the translation apps useful, and nearly two-thirds of participants would use translation apps again in the future for overcoming language barriers. In this study, devices were provided to study sites for their usage; however, evidence in the literature is increasingly showing that healthcare staff are using mobile apps on personal devices such as a smartphones to deliver and improve clinical care to patients (Bautista, 2019; Flynn et al., 2018; Payne et al., 2012; Tran et al., 2014). While innovative, the use of personal devices is typically against organizational policy, and issues of non-work related use, professionalism and patient privacy have been raised (Bautista et al., 2020; Koehler et al., 2013; McBride et al., 2015; Tran et al., 2014). As healthcare staff increasingly look towards using technology as innovations for improving care, issues around the use of personal devices and organizational devices need to be considered if translation apps (and in general mobile health apps) are to be more accepted used more routinely in a healthcare setting.

Language is often considered to be the biggest barrier in communication in the healthcare setting and nurses in particular consider communication to be an important aspect of care (Ali & Watson, 2018). Furthermore, language barriers are a significant barrier to quality care (Bernard et al., 2006) and language barriers can significantly threaten patient safety (van Rosse et al., 2016). The use of translation apps in our study was reported to improve rapport between the older person and the healthcare staff and enable them to complete their tasks as required. As such, translation apps may be a useful tool in overcoming communication issues and assist in basic care of the older person with LEP, in the absence of an interpreter. In addition, findings from the descriptive survey showed that, for most respondents, if translation apps were not used, it was because a family member was present, which represents a breach of government and/or hospital policy. In the distant future, the use of translation apps could help to alleviate potential breaches for healthcare staff in using family members to help interpret.

Our study revealed some issues related to the use of translation apps. For Google Translate, while its voice-to-voice translation feature is innovative, issues related to the microphone and the often noisy ward environment can render the conversational exchange slow and difficult. Like other studies, inaccuracy of translation was an issue that affected the use of Google Translate as well (Beh & Canty, 2015; Börner et al., 2013; Chen et al., 2016). For the translation apps with phrase libraries, allied health disciplines reported that there was a lack of specific phrases for their discipline, which agrees with other findings (Day & Song, 2017). One of the major challenges revealed was the inability to understand the older person's response when staff used the phrase-based translation apps, due to the lack of free or real-time translation ability within these apps. This perpetuated the communication barriers. This has not been previously reported in the literature, perhaps owing to the fact that research into the practical applicability of translation apps is generally limited and a focus on speech-based translation apps such as Google Translate (Beh & Canty, 2015; Chen et al., 2016; Khoong et al., 2019; Miller et al., 2018; Nguyen-Lu et al., 2010; Patil & Davies, 2014) and BabbleDr (Spechbach et al., 2019), which have the ability to translate the patient's response.

Our study has a few limitations. Firstly, we only conducted the trials in four aged-care hospital wards at three large hospital sites. This limits the transferability of the findings to other hospital settings such as acute care or other settings such as residential aged-care or nursing homes. In addition, we only considered free translation apps and did not evaluate the usage of paid translation apps. Given the busy ward environment and that the demographic makeup of the patients in the wards is unpredictable, we did not have specific rules around the collection of observations to improve data collection. As such, the data collection of the observations may be subjected to selective reporting bias during observational data collection. Finally, this trial captured the perceptions of staff usage of translation apps but did not directly capture the patients' perceptions of engaging with the translation app. A study investigating the perceptions of older people towards the use of translation apps on the ward for basic communication would be warranted.

7 | CONCLUSIONS

Our study revealed that the use of translation apps helped to improve communication between healthcare staff and older CALD people with LEP for basic care needs and assisted staff in completing their tasks. 65% of respondents would use these translation apps in the future to help with their care tasks. While considering potential practical shortcomings of translation apps, the findings suggest that translation apps are a welcome and useful tool for overcoming language barriers in the healthcare setting with an older person with LEP.

AUTHOR CONTRIBUTIONS

All authors contributed to the conception of the project. KH, SW and AP collected the data. KH and SW analysed the results. All authors contributed to the interpretation of the results, critically reviewed the manuscript and approved the final version of the manuscript.

DATA AVAILABILITY STATEMENT

Data for this study are not available due to privacy/ethical restrictions.

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SUPPORTING INFORMATION

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